

REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 9-13 and 23-29 are presently pending in this application, Claims 11-13 having been withdrawn from further consideration by the Examiner, Claims 9, 10 and 23 having been amended and Claim 29 having been newly added by the present amendment.

In the outstanding Office Action, the drawings were objected to because of informalities; Claims 9, 10, 23, 24 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kotraba et al. (U.S. Patent 5,186,741); and Claims 25 and 26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kotraba et al., and further in view of Hanewald et al. (U.S. Patent 4,597,564).

In response to the objection of the drawings, Figures 6 and 15 have been amended to correct the pale lead lines pointed out by the Examiner and the underline beneath Reference Numeral 201 has been deleted in Figure 6.

Claims 9, 10 and 23 have been amended and Claim 29 has been newly added herein. Claims 9 and 10 have been amended solely to clarify their subject matters, and amended Claim 23 and new Claim 29 are believed to find support in the original specification, claims and drawings, for example, page 26, line 9, to page 28, line 12, of the specification. Hence, no new matter is believed to be added thereby.

Before addressing the outstanding art rejections, a brief summary of Claim 9 according to the present invention is believed to be helpful. Claim 9 is directed to a method of reducing wet raw material pellets and the method includes forming raw material pellets comprising a mixture of iron oxide powder, reducing material powder, and a binder, continuously forming a bed covering layer covering a rotary bed of a rotary bed direct

reducing furnace with insulating material particles having a higher melting point than the heating temperature in the reducing furnace for reducing the wet raw material pellets immediately before charging the wet raw material pellets so as to protect wet raw material pellets from thermal shock when charged, and charging the wet raw material pellets on the bed covering layer. By continuously forming a bed covering layer in the reducing furnace for reducing the raw material pellets as such, the raw material pellets reduced in the reducing furnace can be continuously discharged from the reducing furnace together with the bed covering layer of the insulating particles which in turn are utilized as desulfurizing agent in a subsequent smelting process by mixing and smelting with the reduced iron pellets.

Kotraba et al. disclose a direct reduction process in a rotary hearth furnace.

Nevertheless, Kotraba et al. are not believed to teach “*continuously forming a bed covering layer covering a rotary bed of a rotary bed direct reducing furnace with insulating material particles having a higher melting point than the heating temperature immediately before charging the wet raw material pellets in said reducing furnace for reducing the wet raw material pellets*” as recited in Claim 9 (emphasis added in Italic). On the contrary, in the Kotraba et al. direct reduction process, the green pellets 26 made of a mixture of steel furnace dust, carbonaceous material iron and a binder are supplied over the layer 42 made of the burned pellets 42a or dolomite, and the layer 42 *integrally* forms the uppermost layer of the rotary hearth 32. In fact, as shown in Fig. 6 of Kotraba et al., the layer 42 is held by both ends of the hearth 32 and has the same height as the ends of the hearth 32. In addition, Figs. 4 and 5 of Kotraba et al. clearly show a discharge mechanism for discharging the reduced pellets, but the layer 42 remains on the surface of the hearth 32 without being discharged, and is maintained as a part of the rotary hearth, i.e., once it is provided, it remains without being discharged, and cannot be formed continuously. In other words, according to Kotraba et al.,

the layer 42 is formed at the time of starting up the furnace and green pellets are fed after the top layer of the layer 42 is completed and stabilized, thereby continuously supplying green pellets over the layer 42. Thus, Kotraba et al. are not believed to disclose continuously forming a bed covering layer by continuously supplying insulating particles, and it is believed that the Kotraba et al. process would not allow continuous discharge of the insulating particles. Therefore, the subject matter recited in Claim 9 is believed to be distinguishable from Kotraba et al.

Hanewald et al. disclose a rotary hearth, but do not teach "*continuously forming a bed covering layer* covering a rotary bed of a rotary bed direct reducing furnace with insulating material particles having a higher melting point than the heating temperature *immediately before charging the wet raw material pellets in said reducing furnace for reducing the wet raw material pellets*" as recited in Claim 9. According to Hanewald et al., the Hanewald et al. rotary hearth has a refractory base plate having inner and outer walls on the top surface and the top surface of the refractory base plate is covered by a loose granular refractory material bound by the inner and outer walls of the refractory base plate. As such, the Hanewald et al. rotary hearth is not believed to disclose continuously forming a bed covering layer covering a rotary bed of a rotary bed direct reducing furnace with insulating material particle as recited in Claim 9. Thus, the subject matter recited in Claim 9 is believed to be distinguishable from Hanewald et al.

Likewise, Claim 23 has been amended to incorporate subject matter substantially similar to what is recited in Claim 9 to the extent discussed above. Thus, Claim 23 is also believed to be distinguishable from Kotraba et al. and Hanewald et al.

For the foregoing reasons, Claims 9 and 23 are believed to be allowable. Furthermore, since Claims 10 and 24-28 directly depend from either Claim 9 or 23,

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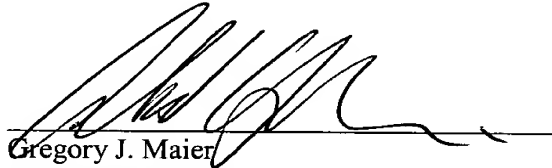
substantially the same arguments set forth above also apply to these dependent claims.

Hence, Claims 10 and 24-28 are believed to be allowable as well.

In view of the amendments and discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

Respectfully submitted,

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